

Serial No. 10/790,525

Docket No. TI-36348

**REMARKS**

Claims 1-33 are currently pending in the subject application, and are presently under consideration. Claims 1-33 are rejected. Claims 1, 6, 14, 16, 20, 21, 25-29 and 33 have been amended. Claims 5, 15, 22 and 32 have been canceled. New claims 34-37 have been added. Favorable reconsideration of the application is requested in view of the amendments and comments herein.

**I. Rejection of Claims 1-33 under 35 U.S.C. 103(a)**

Claims 1-33 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,272,336 to Appel, et al. ("Appel") in view of U.S. Patent No. 6,463,295 Yun ("Yun") and in further in view of U.S. Patent No. 6,054,894 to Wright, et al. ("Wright"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 1 has been amended to make explicit that which was believed to be implicit. Moreover, claim 1 has been amended to substantially incorporate the subject matter of claim 5, which has been canceled accordingly. Appel taken in view of Yun and in further view of Wright does not teach or suggest an equalization system that adjusts tones in a signal spectrum employed to provide a transmitter output signal so that the signal spectrum has a desired spectral shape, the equalization system adjusting the tones in the signal spectrum during calibration based on the indication of power, as recited in amended claim 1.

In rejecting claim 5, the Office Action (at page 7) contends that numerous sections of Yun teach the elements recited in claim 5 (which claim was substantially incorporated into amended claim 1). Applicant's representative respectfully disagrees. Yun is related to ongoing power control of a communication station. (See e.g., Yun, Abstract). In Yun, the only tone disclosed is a Pilot tone. Yun discloses that the pilot tone can be continually transmitted at a known power level on a downlink to determine path loss (See Yun, Col. 33, Lines 43-48). In contrast to Yun, amended claim 1 recites that the equalization system adjusts tones (e.g., more than one is adjusted). Nothing in Yun teaches or suggests adjustment of the pilot tone disclosed. In fact, as discussed above, Yun explicitly teaches that the pilot tone is continually transmitted at a known power level. Applicant's representative respectfully submits that no structure or process taught or suggested in Appel, Yun or Wright, taken in individually or in combination teaches or suggests the equalization system recited in amended claim 1, since the equalization system

recited in amended claim 1 adjusts tones, while the pilot tone disclosed in Yun is continually transmitted at a known power level.

Further, the equalization system recited in amended claim 1 adjusts tones in a signal spectrum during calibration based on an indication of power for a transmitter output signal. In contrast to amended claim 1, in Yun, power adjustments are based on the signal to interference-noise-ratio (SINR) of a received signal (See e.g., Yun, FIG. 6 and Col. 5, Lines 23-25). That is, Yun fails to teach or suggest an adjustment of tones based on an indication of power for a transmitter output signal, as recited in amended claim 1. Thus, Applicant's representative respectfully submits that the cited art does not make amended claim 1 obvious since Appel taken in view of Yun and in further view of Wright fails to teach or suggest the system recited in amended claim 1. Accordingly, amended claim 1, as well as claims 2-4, 6-13 and 34 depending therefrom, are patentable.

Additionally, Appel taken in view of Yun and in further view of Wright does not teach or suggest a carrier correction system that adjusts direct current (DC) offset of at least one of an in-phase (I) signal component and a quadrature (Q) signal component utilized to provide a transmitter output signal based on an indication of power to mitigate spikes in a carrier level of the transmitter output signal, as recited in claim 4. In rejecting claim 4, the Office Action contends that Appel and Wright teach the elements of claim 4 (See Office Action, pages 6-7). Applicant's representative respectfully disagrees.

In contrast to the contention in the Office Action, Wright discloses an adaptive control processing and compensation estimator (ACPCE) 28 (See Wright, Col. 25, Lines 7-8 and FIG. 13). The ACPCE 28 controls a digital compensation processor 21 based on errors introduced in signal paths of  $Ph_a(t)$  and  $Ph_b(t)$  (See Wright, Col. 7, Lines 22-26). In Wright, the  $Ph_a(t)$  and  $Ph_b(t)$  signals are compared to a complex baseband signal  $\gamma_s(t)$ , which is a complex baseband equivalent of a sampled amplified signal  $\Gamma_s(t)$ . In contrast to the teachings of Wright, the carrier correction system recited in claim 4 adjusts DC offset based on an indication of power for a transmitter output signal. Wright is devoid of any teaching or suggestion that the ACPCE 28 bases adjustments of DC offsets on an indication of power. Instead, the ACPCE 28 disclosed in Wright makes adjustments based on a direct comparison of  $Ph_a(t)$  and  $Ph_b(t)$  with  $\gamma_s(t)$ . In fact, no process or structure taught or suggested in Wright teaches or suggests the carrier correction

system recited in claim 4. Accordingly, Appel taken in view of Yun and in further view of Wright fails to teach or suggest the carrier correction system recited in claim 4, since the recited carrier correction system adjusts a DC offset based on an indication of power. Accordingly, Appel taken in view of Yun and in further view of Wright does not make claim 4 obvious.

Furthermore, claim 6 has been amended to maintain consistency with the amendments to claim 1. Appel taken in view of Yun and in further view of Wright does not teach or suggest the equalization system recited in claim 6. In rejecting claim 6, the Office Action contends that Col. 16, Lines 15-55 and Col. 18, Line 58-Col. 19, Line 50 of Yun teaches the equalization system of claim 6 (See Office Action, Page 7). Applicant's representative respectfully disagrees. The cited sections of Yun are completely silent on weighting tones in a signal spectrum based on an indication of power with the tones in the signal spectrum relative to an indication of power associated with a reference tone in the signal spectrum. In fact, the cited sections of Yun make no mention of tones in a signal spectrum. Thus, the cited sections of Yun cannot teach or suggest a reference tone in the signal spectrum, such as recited in claim 6. Instead, the cited sections of Yun are related to adjusting the power of signals transmitted between a base station (BS) and a subscriber unit (SU) (See Yun, Col. 16, Lines 42-44 and Col. 19, Lines 36-38). Nothing in the cited sections of Yun (or Yun in general) teaches or suggests selectively weighting tones in a signal spectrum based on an indication of power associated with the tones in the signal spectrum relative to an indication of power associated with a reference tone in the signal spectrum, as recited in claim 6. Since the other art in the combination fails to cure the above-noted deficiencies of Yun, there is no teaching or suggestion in the combination of an equalization system selectively weighting tones in a signal spectrum in the particular manner recited in claim 6. Accordingly, Appel taken in view of Yun and in further view of Wright fails to make claim 6 obvious.

Further still, claim 7 recites specific structure, namely a comparator and a weighting function, that performs the selective weighting of tones recited in claim 6, from which claim 7 depends. Applicant's representative respectfully submits that since Appel taken in view of Yun and in further view of Wright fails to make claim 6 obvious, the cited art cannot teach or suggest the comparator and the weighting function recited in claim 7, which comparator provides the

indication of power discussed above with respect to amended claim 1. Accordingly, Appel taken in view of Yun and in further view of Wright fails to make claim 7 obvious.

Yet further, Appel taken in view of Yun and in further view of Wright does not teach or suggest an integrated circuit comprising the system recited in amended claim 1, as recited in claim 13. The Office Action, at page 9, appears to contend that claim 13 is obvious "because the claimed integrated circuit for a correction would perform the system steps." Applicant submits that this rationale fails to establish a prima facie case of unpatentability for claim 13 since it fails to provide support as to how it would be obvious to provide an integrated circuit of claim 13 in view of the combination of Appel, Yun and Wright. The contention that an integrated circuit would perform steps of a system appears to be an illogical statement that does not support the position that claim 13 is obvious. Additionally, the reliance on Yun relating to original claim 5 (now in amended claim 1 from which claim 13 depends) appears to contradict the contention in the Office Action. Yun is related to ongoing power control regulation between a base station (BS) and a separate and spaced apart subscriber unit (SU) (See e.g., Yun, Col. 35, Lines 15-18 and FIGS. 8(a)-8(b)). That is, the system in Yun requires a signal to be transmitted between two physically separated entities (namely, a BS and an SU) in order control uplink and downlink power levels (See Yun, Col. 35, Lines 30-50). If only one of the BS or SU were utilized in the combination of Appel taken in view of Yun and in further view of Wright, there would be no teaching or suggestion to perform calibration based on the transmitter output power since, at each of the BS and the SU, Yun teaches using the power of the received signal - not the power of the transmitter output signal, as recited in claim 1. For these reasons, Appel taken in view of Yun and in further view of Wright does not make claim 13 obvious.

Claim 14 has been amended to make explicit that which was believed to be implicit and to substantially incorporate the subject matter of claim 15, which has been canceled accordingly. As discussed above with respect to claim 4, Wright (which the Office Action, at pages 9-10, contends teaches the elements recited in claim 15) discloses an ACPCE 28 that controls a digital compensation processor 21 based on errors introduced in signal paths of  $Ph_a(t)$  and  $Ph_b(t)$  (See Wright, Col. 7, Lines 22-26). In Wright, the  $Ph_a(t)$  and  $Ph_b(t)$  signals are compared to a complex baseband signal  $y_s(t)$ , which is a complex baseband equivalent of a sampled amplified signal  $\Gamma_s(t)$ . In contrast to the correction system recited in amended claim 14, the ACPCE 28 disclosed

in Wright does not include a carrier correction system that adjusts a level of at least one of an I and Q-signal components based on an indication of power to compensate for an impairment associated with the communications apparatus that affects a level of the carrier signal in the transmit signal. In fact, nothing in Wright teaches or suggests that the ACPCE 28 employs an indication of power at all. Accordingly, Appel taken in view of Yun and in further view of Wright fails to make amended claim 14 obvious, since the cited art fails to teach or suggest the carrier correction system recited in amended claim 14. Accordingly, amended claim 14, as well as claims 16-20 and 35 depending therefrom, is patentable.

Additionally, claim 16 has been amended to maintain consistency with amended claim 14. Moreover, for the reasons similar to those stated above with respect to amended claim 1, Appel taken in view of Yun and in further view of Wright does not teach or suggest an equalization system, as recited in claim 16. In claim 16, the equalization system adjusts tones in a signal spectrum corresponding to the transmit signal based on the indication of power so that the signal spectrum has a desired spectral shape. In contrast, Yun (which the Office Action contends teaches the elements of claim 16) fails to teach or suggest adjustment of tones. Accordingly, Appel taken in view of Yun and in further view of Wright does not make claim 16 obvious, since the cited art does not teach or suggest the equalization system recited in claim 16.

Furthermore, claim 17 is similar to claim 6 and is not made obvious by Appel taken in view of Yun and in further view of Wright for reasons similar to claim 6. That is, for reasons discussed above with respect to claim 6, Appel taken in view of Yun and in further view of Wright does not teach or suggest an equalization system selectively weighting tones in a signal spectrum based on an indication of power associated with the tones in the signal spectrum relative to an indication of power associated with a reference tone in the signal spectrum, as recited in claim 17. Accordingly, claim 17 is patentable.

Claim 20 has been amended to depend from claim 16. Amended claim 20 is similar to claim 13 and is not made obvious for reasons similar to claim 13. In particular, combining and modifying the teachings of Appel, Yun and Wright in the manner suggested by the Office Action would cause the system disclosed in Yun to be unsatisfactory for its intended purpose, since combining and modifying the teachings of Appel, Yun and Wright to read on amended claim 20

would require that the BS and the SU disclosed in Wright be merged into one entity. Accordingly, claim 20 is patentable.

Claim 21 has been amended to make explicit that which was believed to be implicit and to substantially incorporate the subject matter recited in claim 22, while claim 22 has been canceled accordingly. For reasons similar to those discussed above with respect to amended claim 1, Appel, taken in view of Yun and in further view of Wright does not teach or suggest means for shaping a signal spectrum in the transmit output signal by adjusting at least one of an I-signal component and a Q-signal component based on an indication of power, as recited in amended claim 21. In particular, in Yun (which the Office Action contends teaches the elements of claim 22, which was substantially incorporated into amended claim 21) power adjustments are based on the SINR of a received signal (See e.g., Yun, FIG. 6 and Col. 5, Lines 23-25). In contrast to the teachings of Yun, in amended claim 21 the indication of power (which is the basis for shaping the recited signal spectrum) is determined for a transmit output signal. Therefore, Appel taken in view of Yun and in further view of Wright does not teach or suggest the means for shaping recited in amended claim 21. Since Appel taken in view of Yun and in further view of Wright does not teach or suggest the means for shaping recited in amended claim 21, Applicant's representative respectfully submits that the cited art does not make amended claim 21 obvious. Accordingly, amended claim 21 as well as claims 23-27 and 36 depending therefrom are patentable.

Moreover, claims 25-27 have been amended to correct minor informalities. Additionally, claims 26 and 27 are similar to claims 11 and 12, and are thus patentable for reason similar to claims 11 and 12.

Claim 28 has been amended to make explicit that which was believed to be implicit and to substantially incorporate the subject matter of claim 32, while claim 32 has been canceled accordingly. Appel taken in view of Yun and in further view of Wright does not teach or suggest applying weight factors based on an indication of power to at least one of an I-signal component and a Q-signal component for tones that form a signal spectrum of a transmitter output signal for adjusting a spectral shape of the transmitter output signal, as recited in amended claim 28. The Office Action contends that various sections of Yun disclose claim 32 (which has been substantially incorporated into amended claim 28). Applicant's representative respectfully

submits that the applying of weight factors recited in amended claim 28 is not taught or suggested by Yun (or any of the cited art). In particular, the cited sections of Yun are related to adjusting uplink and downlink power between a BS and an SU (See e.g., Yun, Col. 34, Line 30-50). Nothing in the cited sections of Yun (or elsewhere in Yun) teaches or suggests applying weight factors based on an indication of power of a transmitter output signal, as recited in amended claim 28. In contrast to amended claim 28, in Yun, power adjustments are based on the SINR of a received signal (See e.g., Yun, FIG. 6 and Col. 5, Lines 23-25). Therefore, Appel, taken in view of Yun and in further view of Wright does not make amended claim 28 obvious, since the cited art fails to teach or suggest the applying of weight factors recited in amended claim 28. Thus, claim 28 as well as claims 29-31, 33 and 37 depending therefrom are patentable.

Additionally, claim 33 has been amended to maintain consistency with amended claim 28. Appel taken in view of Yun and in further view of Wright does not teach or suggest determining a weight factor for each tone based on an indication of power associated with each respective one of the tones relative to an indication of power associated with a reference one of the tones, as recited in claim 33. In rejecting claim 33, the Office Action contends that Yun teaches the elements of claim 33 (See Office Action, Page 15). Applicant's representative respectfully disagrees. The cited sections of Yun cited in the rejection of claim 33 are completely silent on determining a weight factor for each tone based on an indication of power associated with each respective one of the tones relative to an indication of power associated with a reference one of the tones, as recited in claim 33. In fact, the cited sections of Yun make no mention of tones. Thus, the cited sections of Yun cannot teach or suggest an indication of power associated with a reference one of the tones, such as recited in claim 33. Instead, the cited sections of Yun are related to adjusting the power of signals transmitted between a BS and an SU (See Yun, Col. 27, Lines 28-31 and Col. 31, Lines 46-50). Nothing in the cited sections of Yun (or Yun in general) teaches or suggests determining a weight factor for each tone based on an indication of power associated with each respective one of the tones relative to an indication of power associated with a reference one of the tones, as recited in claim 33. Since Appel taken in view of Yun and in further view of Wright does not teach or suggest determining the weight factor, as recited in claim 33, Applicant's representative respectfully submits that the cited art does not make claim 33 obvious.

**II. New Claims 34-37**

New claims 34-37 depend from amended claims 1, 14, 21 and 28 and are patentable for at least the same reasons as amended claims 1, 14, 21 and 28. Additionally, each of the new claims 34-37 recite that the output signal is an orthogonal frequency division multiplexing (OFDM) signal. New claims 34-36 are supported by at least Page 17, Lines 22-26 of the Specification. Applicant's representative respectfully submits that none of the cited art, including Appel, Yun and Wright, teaches or suggests the output signal would be an OFDM signal, in the context of the systems of claims 34-37. Accordingly new claims 34-37 are patentable and their allowance is respectfully requested.

**III. CONCLUSION**

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

Should the Examiner have any questions concerning this paper, the Examiner is invited and encouraged to contact Applicant's undersigned attorney at (216) 621-2234, Ext. 106.

No additional fees should be due for this response. In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to Deposit Account No. 20-0090.

Respectfully submitted,

/Gary J Pitzer/

I hereby certify that this correspondence is being transmitted to the U.S. Patent and Trademark Office via electronic filing on November 6, 2007.

Gary J. Pitzer  
Registration No. 39,334

**CUSTOMER NUMBER: 23494**

**TEXAS INSTRUMENTS INCORPORATED**  
P.O. Box 655474, M/S 3999  
Dallas, TX 75265  
(972) 917-5633